variety are hardly more than setaceous; up to 40 cm. long, with a diameter of about one millimeter; the sori show a tendency to an arrangement in rings about the frond. Found in a tide pool at Cedar Ledge, Casco Bay, Maine, July 15, 1904.

Malden, Massachusetts.

SOME NEW OR LITTLE KNOWN CYPERACEAE OF EASTERN NORTH AMERICA.

M. L. Fernald.

Recent studies in various genera of *Cyperaceae* in the eastern United States and adjacent Canada have made it necessary to recognize a number of undescribed species and varieties in our flora and to alter the current interpretation of some others. These items which have been accumulating for some years are here brought together as a series of notes arranged in the sequence of the genera and species as now understood by the writer.

Cyperus dentatus Torr. Fl. 61 (1824) was based upon *C. parviflorus* Muhl. Gram. 19 (1817), not Vahl. To the characterization of Muhlenberg's plant with the "Habitat ad ripas Susquehannae.... etiam in N. Anglia",[1] and with "Spiculis 3 compressis alternis ovatis, 8-floris," [2] Torrey added "Spikes....appearing dentate or pectinate by the spreading of the points of the glumes when old";[3] thus indicating very clearly a plant which occurs on sandy shores from central Maine to western New York and southward at least to West Virginia. This characteristic plant with prominent scale-tips varies in the number of flowers from 5 to 13, and the spikelets are very often altered to leafy tufts. An extreme development of the plant which is more common in certain portions of southern New England than typical *C. dentatus* may be distinguished as

C. dentatus, var. **ctenostachys**, n. var. Spikelets 15–40-flowered, the scale-tips less prominent.— Massachusetts, West Pond, Plymouth, September 23, 1863 — type, September 13, 1853 (*Wm. Boott*); Middleborough Pond, September 9, 1870 (*Wm. Boott*); margin of

[1], [2], Muhl. Gram. 19 (1817). [3] Torr. Fl. 61 (1824).

pond, Centreville, August 5, 1901 (*Clara Imogene Cheney*): NEW JERSEY, pine barrens, without definite locality (*Gray*, Gram. & Cyp. no. 71, in part); swamps near Atsion, September 26, 1867 (*C. F. Parker*).

Usually producing fewer bulblets than *C. dentatus*, and in its elongate spikelets and less prominent scale-tips appearing quite distinct. Numerous transitional specimens occur, however, and both extremes are sometimes mixed on the herbarium-sheets under one label; for example, Dr. Gray's New Jersey material in the Gray Herbarium and Mrs. Cheney's sheet of Centreville plants in the Herbarium of the New England Botanical Club.

CYPERUS **hystricinus**, n. sp. Perennial by short branching rootstocks: the slender smooth rigid culms 2 to 5 dm. high, rising from hard corm-like bases, much exceeding the stiff narrow (2 to 5 mm. broad) smooth leaves: umbel of 3 to 10 smooth simple spreading-ascending rays, mostly shorter than the involucre: spikelets 1–2-flowered, subulate, rigid, 3 to 7 mm. long, densely crowded in cylindric or narrowly obovoid heads (1 to 2.5 cm. long), strongly reflexed, golden brown at maturity: scales closely appressed, the fertile strongly nerved, the terminal involute-subulate: achenes linear-cylindric, 2 to 2.5 mm. long.— NEW JERSEY, sandy fields, near Haddonfield, October 13, 1867 — type (*C. F. Austin*): PENNSYLVANIA, near Philadelphia, 1862 (*C. E. Smith*): MARYLAND, sandy fields, Salisbury, August, 1894 (*W. M. Canby*): GEORGIA, dry sandy soil south of Americus, July 20, 1901 (*R. M. Harper*, no. 1131).

Usually confused in the herbarium with *C. retrofractus* (L.) Torr., which has the culms scabrous at least above, the leaves short-pubescent, the few rays of the umbel mostly upright and longer than the involucre, and the spikelets in a conspicuously turbinate head. The differences between this plant and *C. retrofractus* were known to the late Charles E. Smith, whose specimens are accompanied by detailed notes indicating that the "rough" plant, *C. retrofractus*, is earlier mature than the smooth *C. hystricinus*.

CYPERUS **dipsaciformis**, n. sp. Perennial from corm-like bases: culms scabrous at least above, 2.5 to 8 dm. high: leaves shorter than the culms, scabrous-hispid above, 4 to 9 mm. wide: umbel 4–12-rayed, some of the ascending rays often equalling the involucre: spikelets 1–3-flowered, subulate, rigid, 6 to 11 mm. long, crowded in cylindric or subcylindric heads (1.5 to 4 cm. long), strongly reflexed, yellow-brown at maturity: fertile scales with green midribs: achenes 3 mm. long.— DELAWARE, woods, New Castle County, and near Wilmington, 1864 (*W. M. Canby*): DISTRICT OF COLUMBIA, along Rock Creek, Washington, 1868 (*F. Pech*); "in collibus siccis, apricis,

haud frequens", Washington, July, 1888 (*Th. Holm*); sandy thickets, near Washington, July 22, 1896 — type (*E. S. Steele*): VIRGINIA, Bedford County, August 1, 1871 (*A. H. Curtiss*): KENTUCKY, Pine Mountain, Harlan County, August, 1893 (*T. H. Kearney, Jr.*, no. 222): NORTH CAROLINA, sandy ground, Swain County, July 26, 1891 (*Beardslee & Kofoid*); sandy soil, Biltmore, June 22, 1897 (Biltmore Herb. no. 2134b): GEORGIA, Rome, July, 1888 (*Gerald McCarthy*); Stone Mountain, DeKalb County, July 3, 1893 (*J. K. Small*); dry woods, Athens, June 20, 1900 (*R. M. Harper*, no. 18).

Resembling *C. hystricinus*, but larger, with less developed rootstock, harsh leaves and culms, longer spikelets, scales with prominent green midribs, and longer achenes. From *C. retrofractus*, with which it has likewise been confused, clearly separated by its cylindric rather than turbinate-obovoid heads, browner spikelets, smooth rays, and much less developed rootstock. This is apparently the plant figured in Britton & Brown's Illustrated Flora (fig. 567) as *C. retrofractus*. The latter species which was *Scirpus retrofractus* L. Sp. 50 (1753) was based upon a figure of Plukenet's [1] which shows clearly a coarse plant with strongly turbinate heads, such as occur in a species which is well known from New Jersey to Florida and Texas, and northward in the low country to Missouri.

CYPERUS FILICULMIS Vahl, Enum. ii. 328 (1805) from Carolina was described as having the spikelets 10-flowered, and the scales yellowish on the sides. These characters both of color and number of flowers are found in Carolina specimens and in general in plants of the southeastern states where *C. filiculmis* has the spikelets 1 to 1.6 cm. long, with 8 to 12 flowers, the scales rather thin and yellow-tinged. This plant is common in the southern states but apparently rare in the North where its limits seem to be Iowa, the Mohawk Valley, New York, and Middlesex County, Massachusetts. The common plant of the northern states and adjacent Canada differs in some rather important regards from the typical plant of the South and it is here proposed as

C. FILICULMIS, var. **macilentus**, n. var. Spikelets 3 to 8 mm. long, 4–8-flowered: scales firm, greenish: achenes slightly smaller than in the species.— Dry or sandy open soil, Maine to Ontario, south to Virginia, Ohio, and Illinois. A common plant of which the following, from among numerous specimens, are representative. MAINE, Orono, July 26, 1895 (*M. L. Fernald*, no. 343) — type: NEW HAMP-

[1] Plukenet, Phyt. t. 415, fig. 4 (1742).

SHIRE, Hampton, September 22, 1901 (*B. L. Robinson*, no. 769): VERMONT, Johnson, August 10, 1893 (*A. J. Grout*): MASSACHUSETTS, Plymouth, September 6, 1873 (*Wm. Boott*): RHODE ISLAND, Cumberland, September 13, 1903 (*J. M. Greenman*, no. 1775): CONNECTICUT Southington, July 25 and September 24, 1895 (*C. H. Bissell*, no. 699): NEW YORK, western part of state (*Gray*, Gram. & Cyp., no. 74): VIRGINIA, Franklin, Southampton County, June 9–29, 1893 (*A. A. Heller*, no. 1031): ONTARIO, Point Colborne, July 19, 1901 (*J. Macoun*, no. 34,476): OHIO, vicinity of Wade Park, Cleveland, July 9, 1896 (*J. M. Greenman*, no. 143): MICHIGAN, Fort Gratiot, July 20, 1870 (*H. Gillman*, no. 36): WISCONSIN, Dells of the Wisconsin, August, 1858 (*I. A. Lapham*).

This northern plant with short spikelets and firm green scales seems in its extreme form very distinct from the typical *Cyperus filiculmis* of the South, but some specimens occur with few flowers but yellow-tinged thinnish scales, others with numerous flowers and firm scales.

ELEOCHARIS CAPITATA (L.) R. Br., var. **dispar** (E. J. Hill), n. comb. *E. dispar*, E. J. Hill, Bot. Gaz. vii. 3 (1882).

This local plant of Lake County, Indiana, has of late been treated as identical with the tropical and subtropical *E. capitata*, which occurs along the Gulf of Mexico and in Florida and extends northward along the coastal plain to Maryland. In its essential characters the material from northern Indiana cannot be separated from the southern plant; but *E. capitata* has whitish-brown scales and jet-black achenes, while *E. dispar* has the scales purple-brown and the achenes purple-black. These color characters hold in the twelve Indiana specimens before me and on this account the plant seems worthy recognition as an extreme extralimital variation from the tropical and subtropical type.

ELEOCHARIS **nitida**, n. sp. Perennial from a slender rootstock: culms capillary, 4-angled, striate, 2 to 8 cm. high: tips of the upper sheaths whitish: spikelet oblong-ovoid, acutish, 2.5 to 4.5 mm. long, 1.5 to 2.5 mm. thick, 8–20-flowered: scales elliptic-oblong, with rounded tips, purplish-brown, with greenish ribs and very narrow scarious margins, the lowermost 1 to 1.2 mm. long: achenes whitish-straw-color, narrowly obovoid, sharply trigonous, very minutely (under a lens) roughened, 0.7 to 1 mm. long; the very narrow crown-like tubercle with a short point in the middle.— QUEBEC, springy place, at border of swamp, Parker's Station, Pontiac County, June 3, 1903 (*J. Macoun*).

This beautiful little plant has been collected by Professor Macoun only at the original station on the Pontiac and Pacific Railway in the

Ottawa Valley, and he writes of it "What struck me particularly about it was its early maturity, and its short wiry stems which had a tendency to fall over. . . . The habitat I noted particularly as I was walking around collecting other species when I was struck with the maturity of this *Eleocharis* so early in the season, June 3rd." *E. nitida* is nearest related to *E. tenuis* (Willd.) Schultes, from dwarf specimens of which it differs in the whitish not dark-girdled tips of the upper sheaths, the narrow-margined smaller scales, the outer broad-margined scales of *E. tenuis* being 2 or 3 mm. long; the tiny sharp-angled whitish achenes with minute papillae, the larger achenes of *E. tenuis* being golden-yellow or orange-brown, becoming drab in age, obtuse-angled, and conspicuously papillose-roughened; and the very minute pointed tubercle.

ELEOCHARIS INTERMEDIA (Muhl.) Schultes, var. **Habereri**, n. var. Bristles absent or rudimentary.— NEW YORK, sandy shores of Oneida Lake, Vienna, Oneida County, August 2 and 18, 1900 (*J. V. Haberer*, no. 1149a).

Of this plant Dr. Haberer wrote "All of this material has bristles fugaceous or *none*. Out of much material I find I have but 3 with bristles. . . . It is somewhat curious that the plants within the influence of water — subject to inundation — are liable to be *minus bristles*." This lack of bristles in certain species or varieties is frequent in *Eleocharis*, *Scirpus*, and *Rynchospora*, all or essentially all plants of a lake- or river-system being constant in this character. Thus the now well-known *E. diandra* Chas. Wright constantly lacks bristles throughout the length of the Connecticut Valley, about Oneida Lake and in the Androscoggin Valley. Nearly all the *E. Engelmanni* about Winter Pond in Winchester, Massachusetts, belongs to the bristleless var. *detonsa* Gray. *E. palustris*, var. *calva* (Torr.) Gray, so far as known to the writer, is a very local plant, though material is often collected at certain stations. All the *Scirpus debilis* about Lake Massapoag in Sharon, Massachusetts, is var. *Williamsii* Fernald, without bristles; and in a few regions — the Kennebec Valley, Maine, Lake County, Indiana, etc.— *Rynchospora capillacea* consistently lacks the perianth and is var. *leviseta* Hill.[1]

[1] For further comments on this point see RHODORA, iii. 250 (1901).

(*To be continued.*)